

FIG. 1

2 MULTI-CHANNEL AMPLIFIER  
20 DECODER  
21 MULTIPLEXER  
5 22 SOUND FIELD PROCESSING PORTION  
23 CHANGEOVER SWITCH  
24 POWER AMPLIFIER  
25 MEASURING SIGNAL GENERATING PORTION  
26 REFERENCE SIGNAL TRANSMITTING PORTION  
10 27 RECEPTION PORTION  
28 POSITION CALCULATING PORTION  
29 POSITION TABLE  
30 SPEAKER LAYOUT CORRECTION PORTION  
31 SOUND FIELD CONTROL PORTION

15 FIG. 2

1 SENSOR  
10 RECEPTION PORTION  
11 MICROPHONE  
12 TIME DIFFERENCE MEASURING PORTION  
20 13 TRANSMISSION PORTION

FIG. 3

101 GENERATE MEASURING SIGNAL  
102 TRANSMIT REFERENCE SIGNAL  
103 RECEIVE REFERENCE SIGNAL AND MEASURING SOUND WAVE  
25 104 MEASURE TIME DIFFERENCE  
105 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
106 IS DISTANCE CALCULATION TERMINATED?  
107 CALCULATE SENSOR POSITION  
108 GENERATE MEASURING SIGNAL  
30 109 TRANSMIT REFERENCE SIGNAL

110 RECEIVE REFERENCE SIGNAL AND MEASURING SOUND WAVE  
 111 MEASURE TIME DIFFERENCE  
 112 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
 113 CALCULATE SPEAKER POSITION  
 5 114 IS POSITION CALCULATION TERMINATED?  
 115 IS LAYOUT INCORRECT?  
 116 CHANGE OVER LINES  
 117 CORRECT SOUND FIELD  
 FIG. 4

10 2 MULTI-CHANNEL AMPLIFIER  
 FIG. 5

201 GENERATE MEASURING SIGNAL  
 202 TRANSMIT REFERENCE SIGNAL  
 203 RECEIVE REFERENCE SIGNAL AND MEASURING SOUND WAVE  
 15 204 MEASURE TIME DIFFERENCE  
 205 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
 206 IS DISTANCE CALCULATION TERMINATED?  
 207 CALCULATE SENSOR POSITION  
 208 CALCULATE EACH SPEAKER POSITION IN ACCORDANCE WITH  
 20 CHANGE OF LISTENING POSITION  
 209 CORRECT SOUND FIELD  
 FIG. 6

2 MULTI-CHANNEL AMPLIFIER  
 FIG. 7

25 2a MULTI-CHANNEL AMPLIFIER  
 20 DECODER  
 21 MULTIPLEXER  
 22 SOUND FIELD PROCESSING PORTION  
 23 CHANGEOVER SWITCH  
 30 24 POWER AMPLIFIER

25 MEASURING SIGNAL GENERATING PORTION  
27 RECEPTION PORTION  
28 POSITION CALCULATING PORTION  
29 POSITION TABLE  
5 30 SPEAKER LAYOUT CORRECTION PORTION  
31 SOUND FIELD CONTROL PORTION  
32 TIME DIFFERENCE MEASURING PORTION

FIG. 8

1a SENSOR  
10 11 MICROPHONE  
13a TRANSMISSION PORTION

FIG. 9

301 GENERATE MEASURING SIGNAL  
302 RECEIVE MEASURING SOUND WAVE  
15 303 MEASURE TIME DIFFERENCE  
304 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
305 IS DISTANCE CALCULATION TERMINATED?  
306 CALCULATE SENSOR POSITION  
307 GENERATE MEASURING SIGNAL  
20 308 RECEIVE MEASURING SOUND WAVE  
309 MEASURE TIME DIFFERENCE  
310 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
311 CALCULATE SPEAKER POSITION  
312 IS POSITION CALCULATION TERMINATED?  
25 313 IS LAYOUT INCORRECT?  
314 CHANGE OVER LINES  
315 CORRECT SOUND FIELD

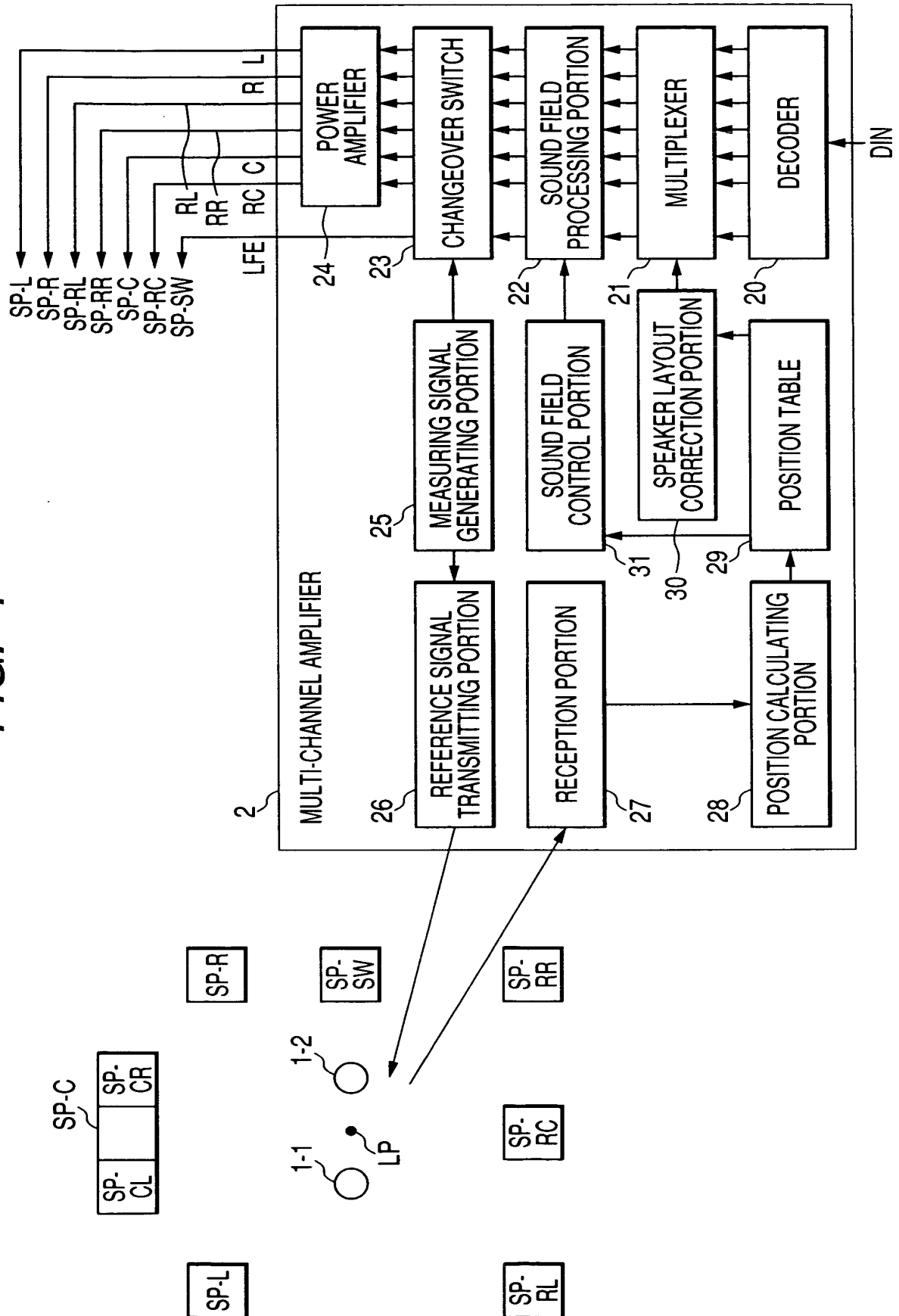
FIG. 10

2a MULTI-CHANNEL AMPLIFIER

30 FIG. 11

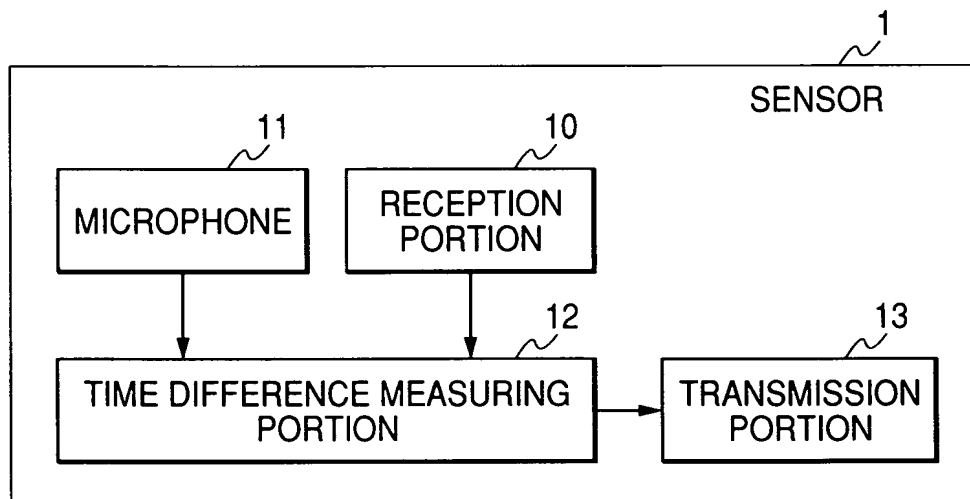
401 GENERATE MEASURING SIGNAL  
402 RECEIVE MEASURING SOUND WAVE  
403 MEASURE TIME DIFFERENCE  
404 CALCULATE DISTANCE BETWEEN SPEAKER AND SENSOR  
5 405 IS DISTANCE CALCULATION TERMINATED?  
406 CALCULATE SENSOR POSITION  
407 IS POSITION CALCULATION TERMINATED?  
408 IS LAYOUT INCORRECT?  
409 CHANGE OVER LINES  
10 410 CORRECT SOUND FIELD

**FIG. 1**



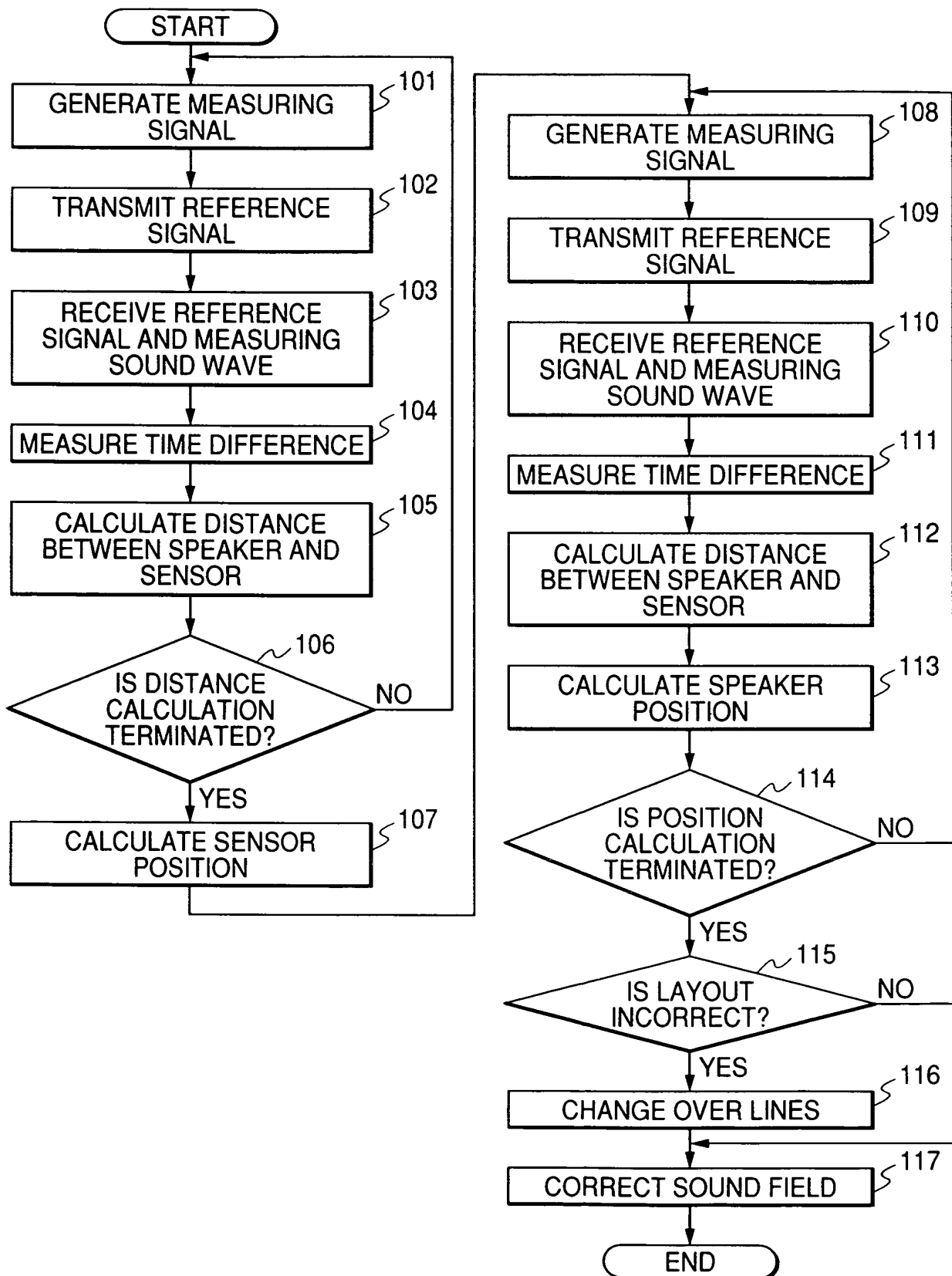
2 / 11

*FIG. 2*



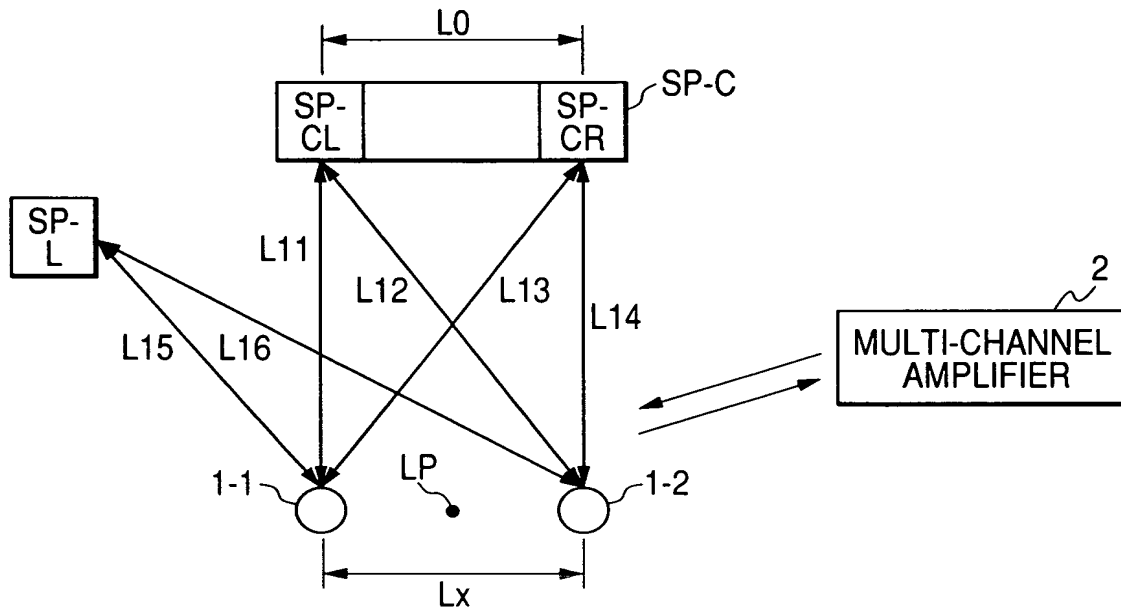
3 / 11

**FIG. 3**



4 / 11

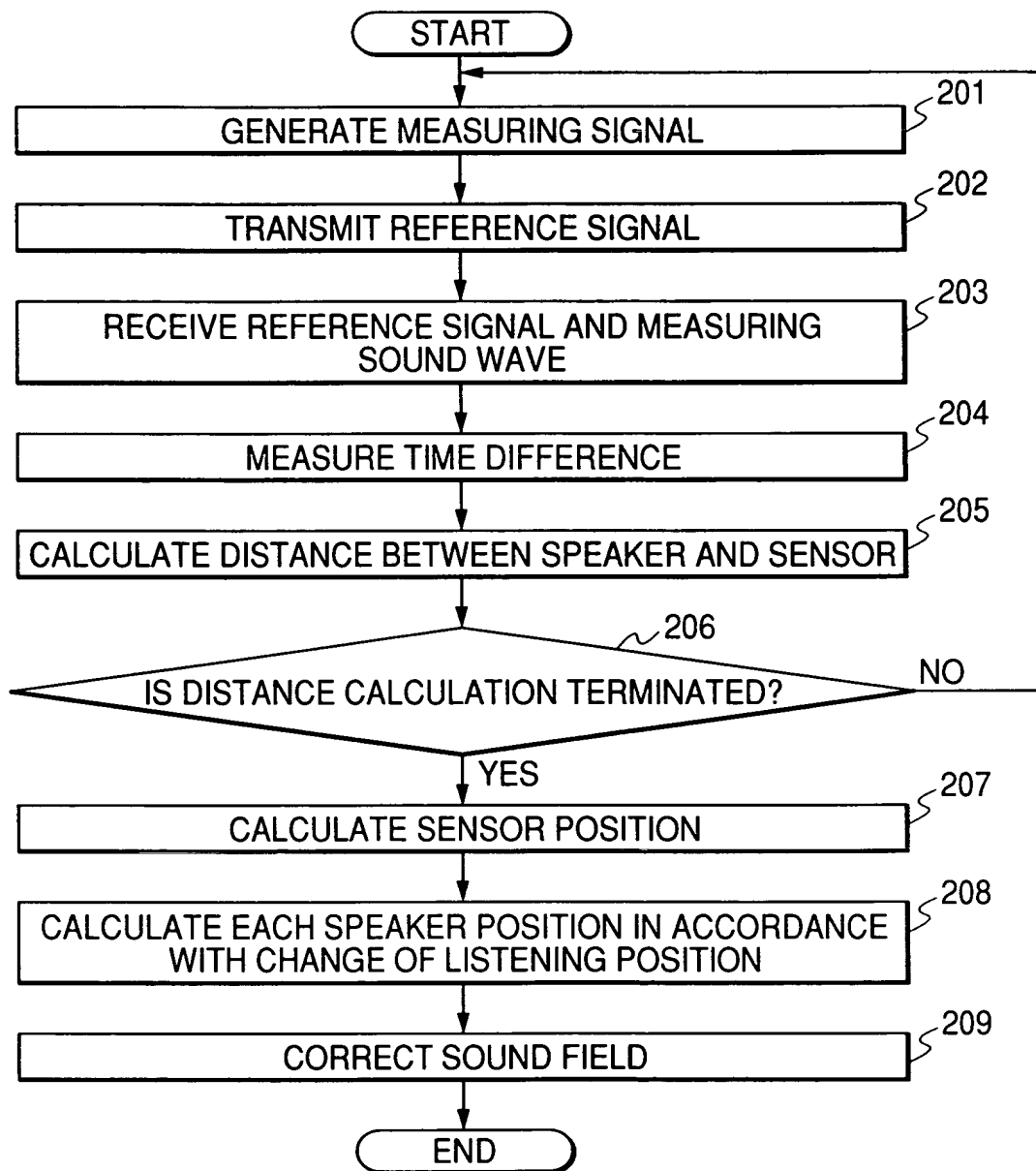
**FIG. 4**





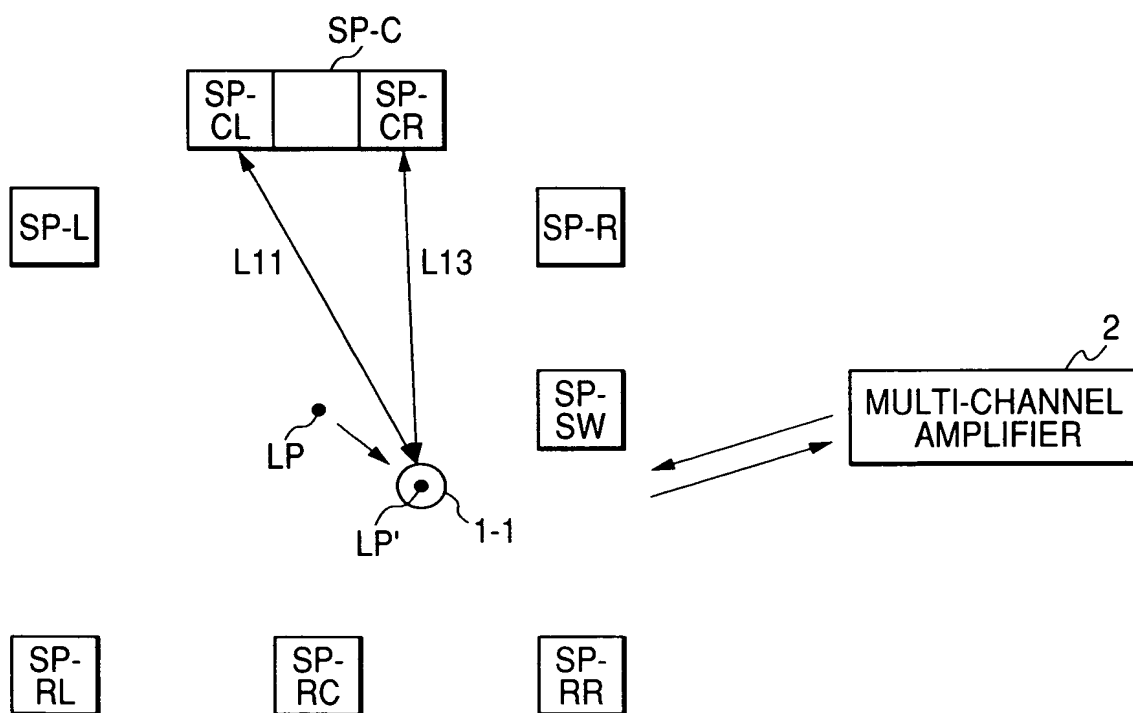
5 / 11

**FIG. 5**



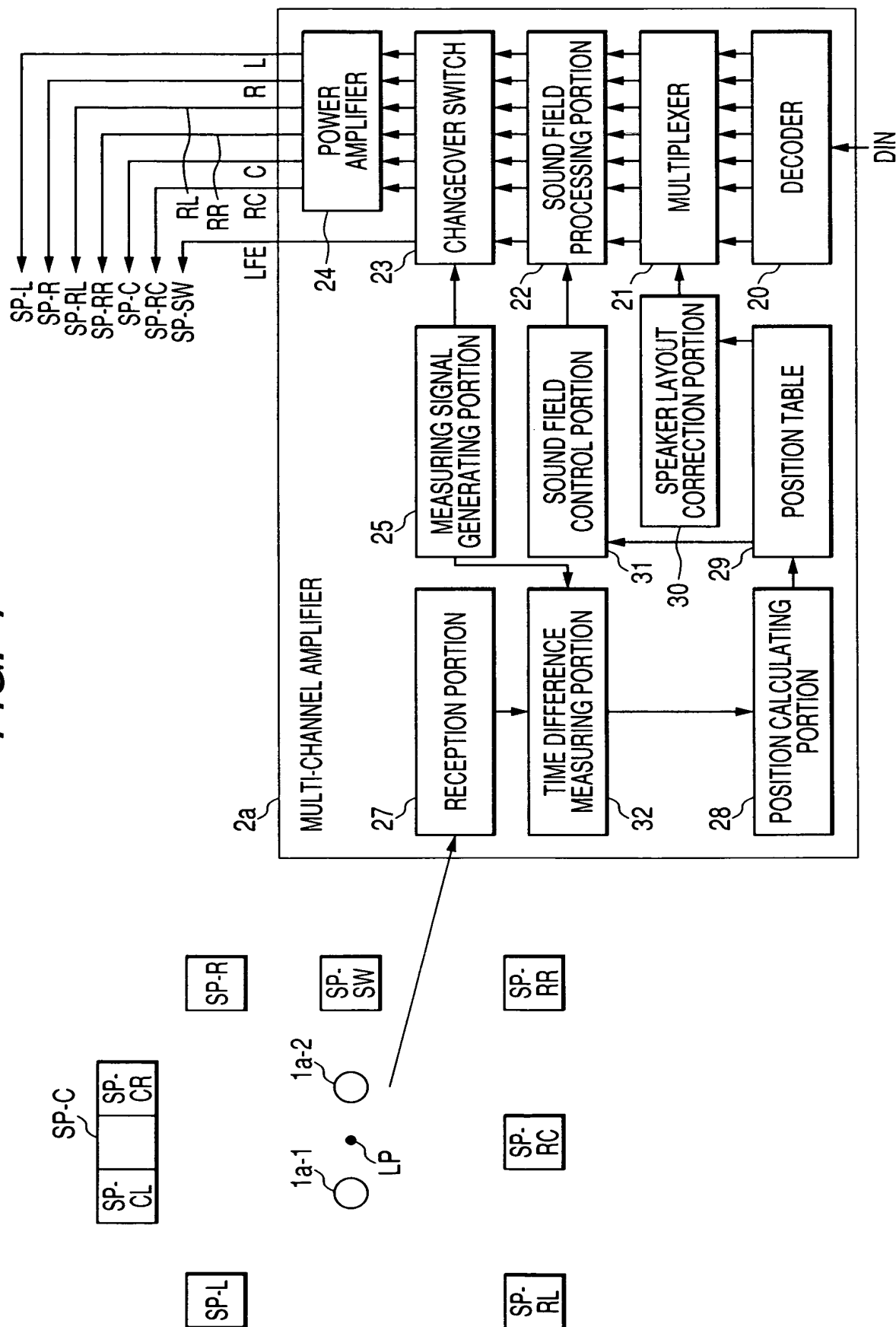
6 / 11

*FIG. 6*



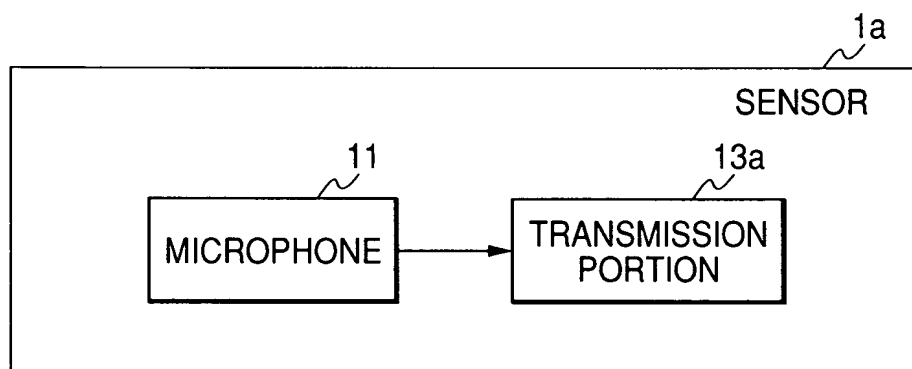
7 / 11

FIG. 7



8 / 11

*FIG. 8*



9 / 11

**FIG. 9**

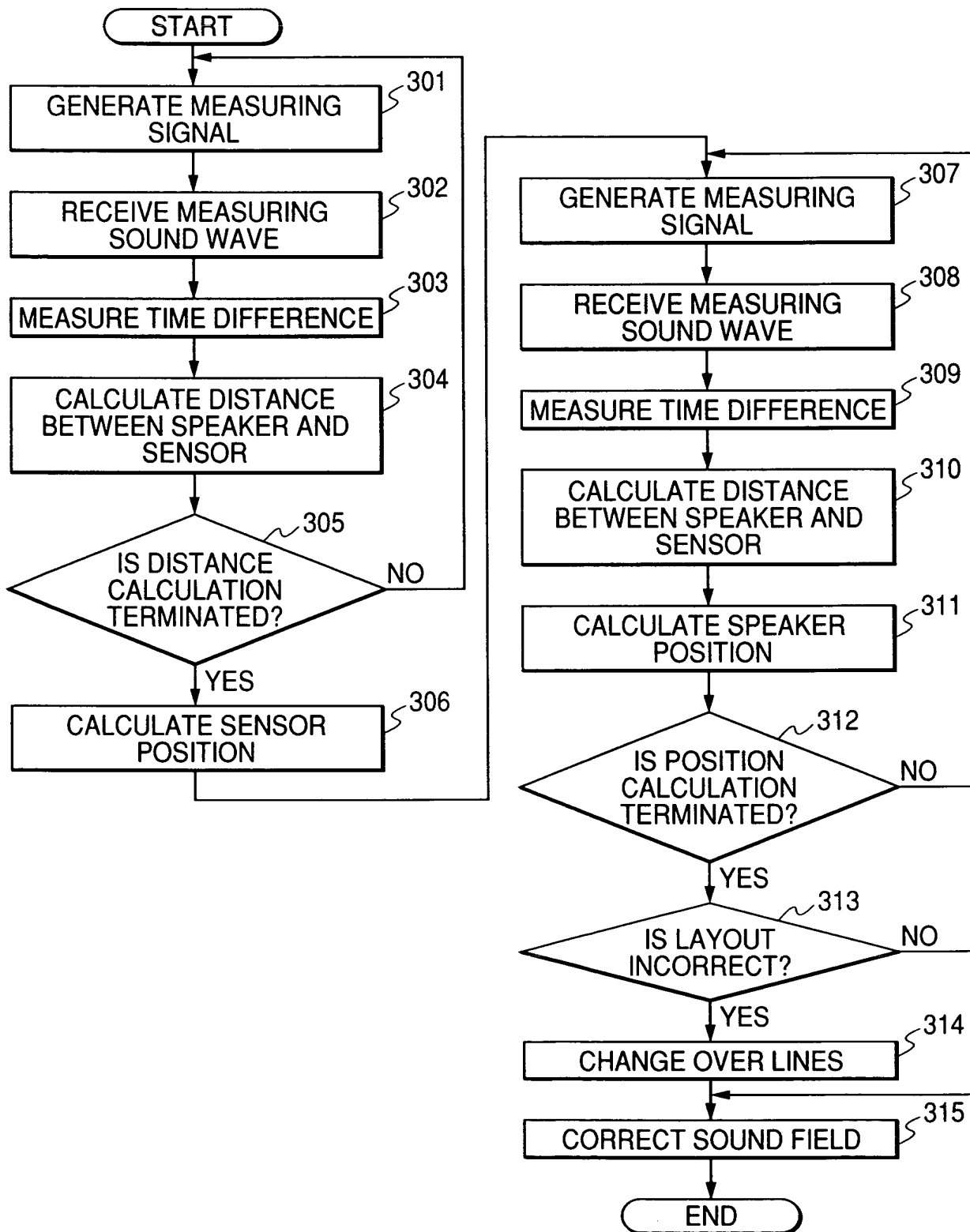
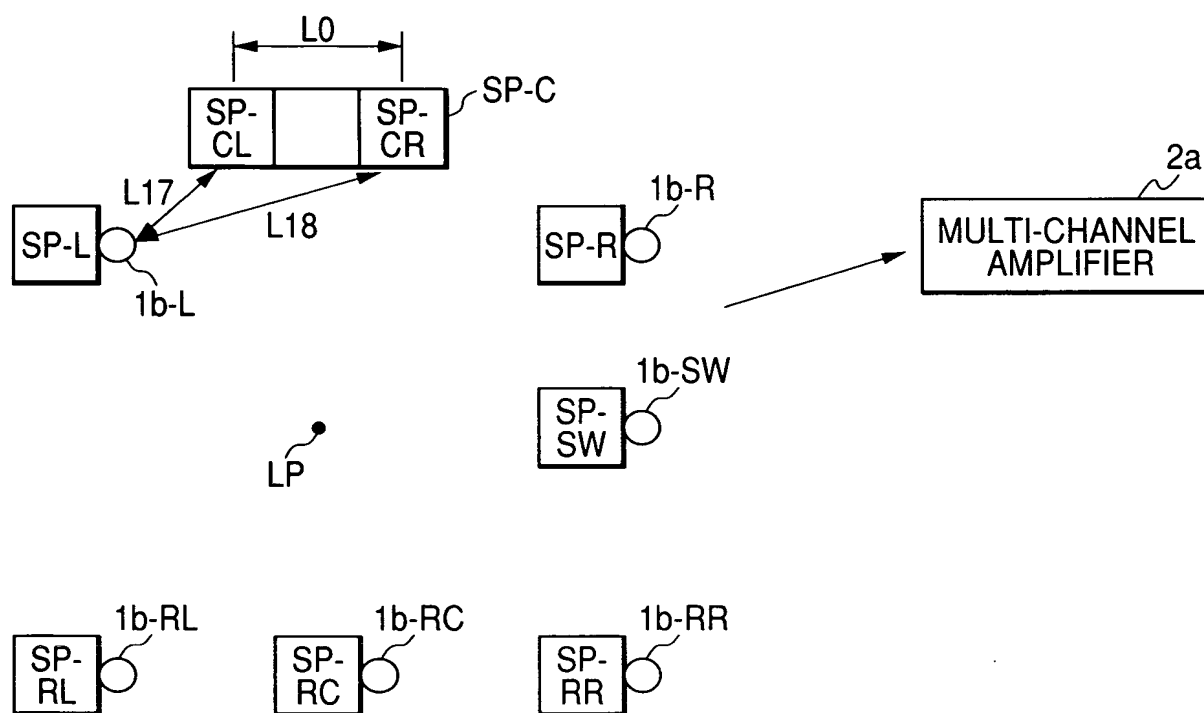


FIG. 10



11 / 11

**FIG. 11**

